MR-90a

Professional ENG Receiver

User Guide

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AS111215

Design and specifications are subject to change without prior notice

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MIPRO

! IMPORTANT SAFETY INSTRUCTIONS !

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarised or ground plug: A polarised plug has two blades with one wider than the other. The wide blade is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plug, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when Moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
16. Apparatus should not be exposed to dripping or splashing and no objects filled with liquids, should be placed on the apparatus.
17. Use only with the battery which specified by manufacturer.
18. The power supply cord set is to be the main disconnected device.

WARNING

1. **FOR OUTDOOR USE:**
   To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
2. **UNDER WET LOCATION:**
   Apparatus should not be exposed to dripping or splashing and no objects filled with liquids, such as vases should be placed on the apparatus.
3. **SERVICE INSTRUCTIONS:**
   CAUTION - These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.

This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

FC & IC - ID

THIS DEVICE COMPLIES WITH PART 74 OF THE FCC RULES AND RSS-123 ISSUE 2 OF CANADA. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.

Disposal

Dispose of any unusable devices or batteries responsibly and in accordance with any applicable regulations.

Disposing of used batteries with domestic waste is to be avoided!

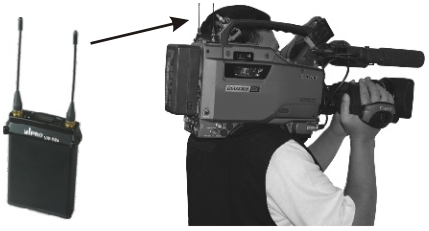
Batteries / NiCad cells often contain heavy metals such as cadmium(Cd), mercury(Hg) and lead(Pb) that makes them unsuitable for disposal with domestic waste. You may return spent batteries/ accumulators free of charge to recycling centres or anywhere else batteries/accumulators are sold.

By doing so, you contribute to the conservation of our environment!

Introduction

The MIPRO MR-90a is a portable wireless, receiver specifically designed for professional camcorder applications. —Matched with any ACT transmitter the MR-90a eliminates the need for microphone cables during recording. —The MR-90a not only allows a closer combination of video and audio so that a more natural sound can be recorded, but it also ensures safer and more agile operation.

For professional camcorder



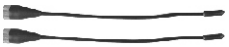
The MR-90a can also be installed on an active PA speaker via its accessories and matched with MIPRO's MA-909 Wireless Audio Mixer to form a wireless inter-linking amplifier system. Alternatively, the MR-90a can be matched with any of the ACT-series wireless transmitter microphones to turn active speakers into wireless amplifiers.

Mount on any active
speaker via velcro fasteners

Professional ENG Receiver

To match the superb characteristics of professional camcorders and active speaker systems, the MR-90a possesses some innovative features in its design: The receiver socket has three different designs. First type can be installed directly into the reserved slot of a SONY BETACAM® camcorder. Second type has an external socket connection and third type has built-in AA-type battery-powered socket connection to accommodate different camcorders and active speaker systems. The performance characteristics of the MR-90E in both high-frequency receiving and audio output adopts the latest audio processing technology from the ACT series, giving it superb performance in both S/N ratio and dynamic range. A rugged and waterproof die-cast metal housing makes the durable MR-90E the best selection in today's wireless receivers for both professional camcorders and active PA speakers.

Included Accessories:

① Anetenna x2 	② Antenna Protective Cover
③ Signal output cables x2	④ DC cable x1
⑤ AC to DC Adaptor x1	⑥ Power Cable x1
⑦ User Guide x1	

* Signal output cable lengths: 14cm and 95cm
* Optional MJ-90 DC cable for SONY camcorders.
* Optional MR-90B Battery Pack. (Accessory)

Functions

The MR-90a compact, miniature receiver utilizes the UHF band, PLL synthesized technology and true diversity design. It has a wide frequency range where 100 selectable frequencies are pre-programmed in each 24 MHz bandwidth with 16 of these specially preset into one group for use with an MA-909 interlinking transmitter. With the world's first ACT function of MIPRO's ACT-series, the receiver and transmitter can set up a working frequency rapidly and automatically. The dual-antenna and true diversity design ensures clear and stable signal receiving with no signal dropout even in the most unpredictable operating environments. A waterproof metal case provides professional strength and durability. A standard LCD panel gives a clear and accurate display of all digital operations and setup. When combined with the SONY BETACAM®-series camcorders, the MR-90 can be installed directly into the reserved slot and needs no external battery or signal cable. When combined with other camcorders or active speaker systems, the MR-90 uses a designated accessory interface module which has an external DC power input or built-in battery-powered input and balanced audio output cable. The MR-90's outstanding circuit characteristics and mechanical design give it exceptional flexibility to work with camcorders, mixers, active speakers and other audio equipment.

Features

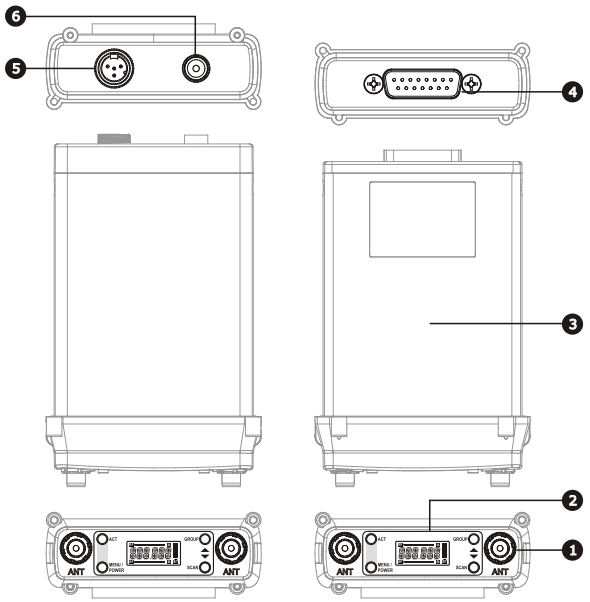
1. Waterproof, rugged, aluminum case, lightweight and ultra-thin.
2. Output interface module can be easily exchanged to work with different camcorders, active speakers and other audio equipment.
3. UHF-band, PLL synthesized, dual-antenna, and true diversity reception.
4. In each 24MHz bandwidth, 100 pre-programmed frequencies can be auto-scanned to locked on an open, interference-free frequency.
5. 16 frequencies are specially preset to work with the matching transmitter.
6. World's first ACT feature automatically matches the transmitter and receiver frequencies.
7. LCD panel shows frequency, RF and AF signal strength, function, diversity, and battery strength for both receiver and transmitter.
8. Control panel has setup button for SCAN, ACT, SQUELCH, and LOCK, allowing easy and error-free setup of receiver.
9. Latest circuitry design ensures a THD below 0.15% and a S/N ratio that is above 107 dBA.
10. Balanced, high-gain audio signal output.
11. Working voltage is 6~12VDC and its power-saver design make power consumption lower than 70mA.
12. Electronic power switch eliminates popping noise during power on/off.
13. Precision SMA soft antenna connection with removable antennas.
14. Back panel is designed for easy attachment so it can match with any audio equipment.
15. Detachable battery-powered pack accessory needs only two AA-sized batteries to provide 8 continuous hours of operation and it eliminates the needs for external power.

Professional ENG Receiver

PART NAMES AND FUNCTIONS

For camcorders and powered PA speakers without built-in power socket.

Mounts onto SONY's BETACAM® camcorders

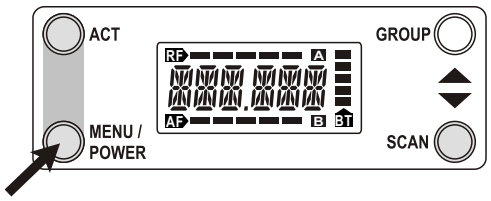


(Figure 1)

1. **Antenna Connector:** To Install SMA soft antenna.
2. **LCD Panel:** Display operating functions.
3. **Weatherproof Case:** Protects internal circuitry.
4. **D-SUB 15PIN Socket:** Compatible with SONY BETACAM® pre-adjusted signal transmission socket.
5. **Mini XLR Connector:** Audio output connector.
6. **DC Power Input Socket:** 12V-DC power socket, positive center.

LCD Display Operating Instructions

LCD panel with all indicators displayed



Button Names and Operating Instructions

MENU: power on/off and function menu.

Press the "MENU" button once to turn the power ON.
Press and hold the "MENU" button to turn the power OFF.
The following six functions can be found in the MENU:

GR--CH→FREQ→SQUELC→AF→BATT→UNLOCK

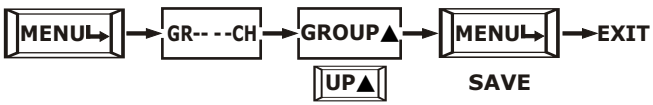
(1) **GR-- --CH:** Display/change the GROUP and CHANNEL setup.

Turn on the power, The LCD displays the current GROUP and CHANNEL.

Set-up for changing GROUP.

Set-up for changing CHANNEL.

A. **"GROUP"** Set-up Instructions:



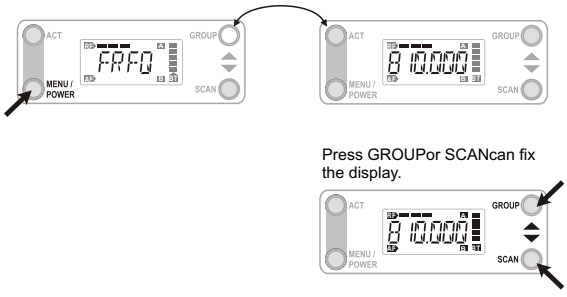
a. Briefly press the "MENU" button until the display shows GH-- --CH. Two numbers indicating the GROUP flash on the LCD display.

b. Briefly press the "GROUP" button to change the group number, or press and hold the "GROUP" button to continuously scroll through the groups. At this time, the last CHANNEL of the GROUP will be displayed. Your entry is confirmed by pressing the "MENU" button until the display flashes twice.

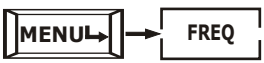
B. **"CHANNEL"** Set-up Instructions

a. Similarly, briefly press the "MENU" button until the display shows GH-- --CH. Press the "SCAN▼" button. The two-digit number indicating the current frequency starts to flash in the lower right corner of the display. Press the "SCAN▼" button again. The receiver scans and stops on an interference-free frequency, if available. If the unit does not stop scanning, you may need to change to another GROUP. Pressing the "SCAN▼" button again or holding it will continuously scan until the button is released. Your entry is confirmed by pressing the "MENU" button until the display flashes twice.

(2) **FREQ:** Display the current frequency.



A. Button Operation:

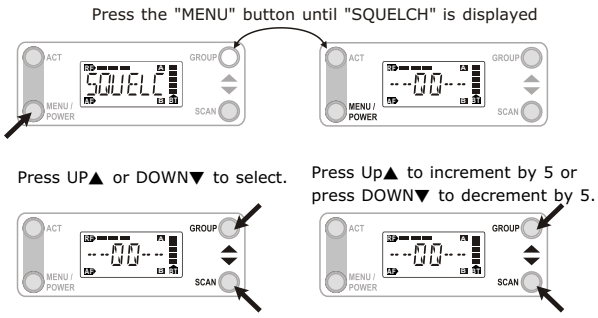


B. Operating Instructions:

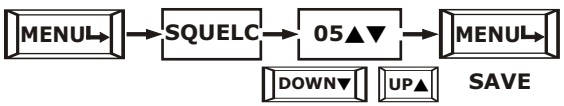
a. Press the "MENU" button until "FREQ" is displayed, The current frequency flashes on the display.

b. This operation only displays the frequency and does, not change the value.

(3) **SQUELCH:** Display/change the SQUELCH setting.



A. Button Operation:



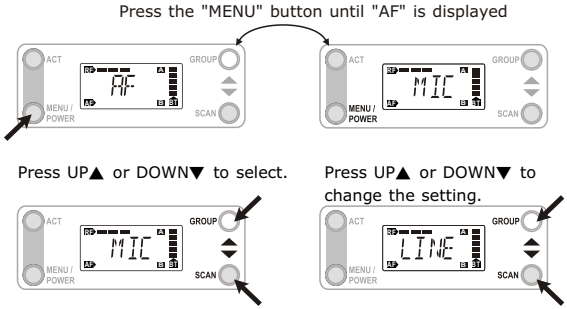
B. Operating Instructions:

a. Pre-programmed SQUELCH value is 05~40, each button and 5 units.

b. Press UP▲ or DOWN▼ button to change the setting. Your entry is confirmed by pressing "MENU" button.

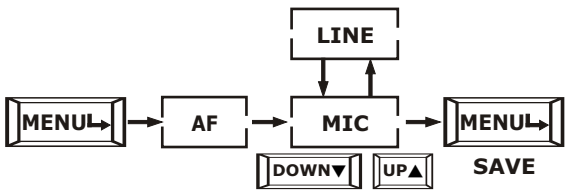
c. A higher setting means a lower receiver sensitivity.

(4) **AF:** Switches between MIC or LINE.



This operation provides for switching MIC or LINE.

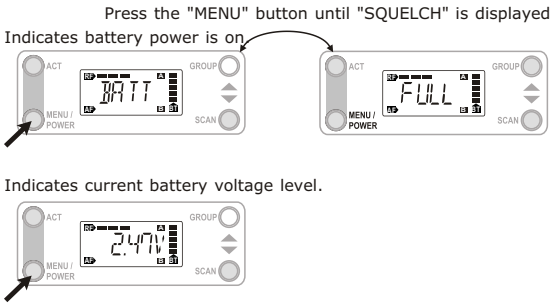
A. Button Operation:



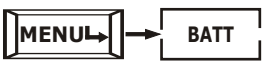
B. Operation Instruction:

With the Up ▲ or DOWN ▼ button you can switch the state of MIC or LINE.

(5) **BATT:** Display battery level on the receiver panel.



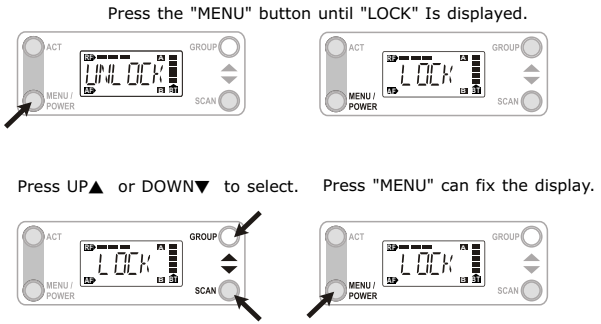
A. Button Operation:



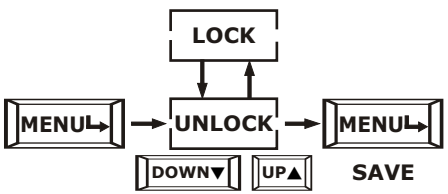
B. Operating Instructions:

a. Press "MENU" button until "BATT" word appears. It will indicate current battery level.

(6) **LOCK:** The operation instruction for lock and unlock setup.



A. Button Operation:



B. Operation Instruction:

a. You can lock the operating buttons to prevent accidental or unauthorized programming. Press "MENU" until "LOCK" appears on the display. Use the UP/DOWN buttons to save setting. Now, only the ACT button can be operated. The buttons are now locked.

b. Press "MENU" until "UNLOCK" appears on the display. Use the UP/DOWN buttons to save setting. The display switches back to the standard display and the buttons can now be operated as usual.

Using the **ACT** function

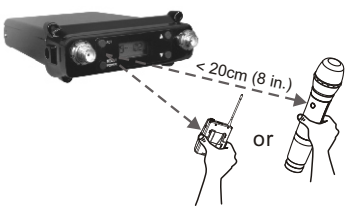
A. Button Operation:

B. Operating Instructions:

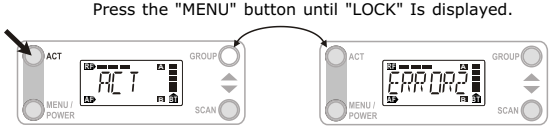
a. On the LCD display, briefly press "ACT" button. "ACT" flashes on the display.

b. Place the transmitter within 20cmof the receiver, and position the ACT signal indicator of the transmitter toward the "ACT" button on the receiver panel. See below.

c. The ACT function will be deactivated automatically once the microphone frequency is locked on and the LCD display on the receiver module returns to the standard display. If "ACT" is flashing on the display, The function was not successful and will have to repeated.

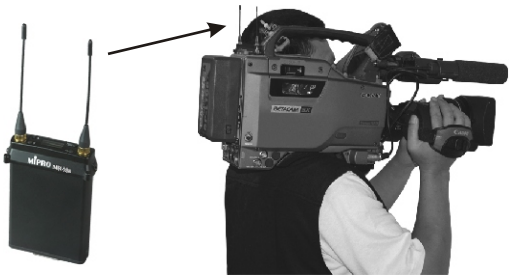


Press the "MENU" button until "LOCK" Is displayed.

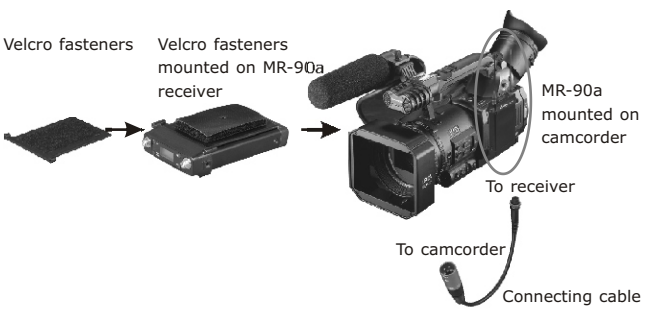


Installation

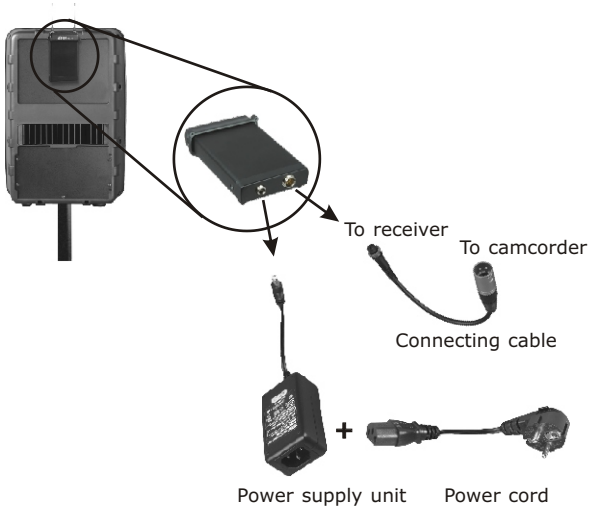
Plug into built-in slot on SONY Betacam®-series camcorders.



Connect to other camcorders via exclusive accessories.



Connect to active speaker via exclusive accessories.



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